



COLORADO

Division of Fire Prevention & Control

Department of Public Safety

FIRE & LIFE SAFETY

IN THIS ISSUE

- Section Chief Message
- Fireworks 2021
- Drinking From a Firehose and Understanding Socrates: A New Hire's Reflection on the Honor of Being a Member of DFPC
- The Fire Inspector's Mindset
- What is an "Arson Dog"?
- 2021 DFPC Plane Pull for Colorado Special Olympics
- DFPC 2021 Code Adoption and Sprinkler Fitters
- Fire Prevention Week is October 3rd – 9th. Learn the Sounds of Fire Safety!
- Building Code Branch Updates





Message from Section Chief, Chris Brunette

Summer is a time for relaxation and fun. But if you've lived in Colorado for any amount of time, you also know that it is a time during which you should always be expecting the unexpected. As a native to Colorado and having spent too many summers to admit enjoying all that there is to enjoy in our wonderful state, I know that everything can change in an instant; especially, when we're talking about the weather. A warm sunny day has the potential to change to a dreary one with thunderstorms and heavy rain in a matter of hours; likewise, cool, wet weather can evolve into dry, blistering heat for days on end. I think this is one of the reasons that we love our Colorado - it's untamable and unpredictable, but always beautiful.

I relate all this because, when things change to the unexpected, oftentimes we are called to help out in ways that we weren't expecting. The challenge is to be prepared to help, even if you aren't sure how you might be helping right now. The men and women that make up the Fire & Life Safety Section of the Colorado Division of Fire Prevention & Control are doing just that. Several of our members are trained and certified SAP (Safety Assessment Program) evaluators, prepared to assist local jurisdictions post-disaster with the evaluation of structures for the safe reentry of the owners and occupants. In addition, we have 20+ certified and licensed UAS operators, who are each issued a drone and are ready to assist where needed, whatever the incident or situation. And we have several others who are certified fire investigators; some for structure fires, others for wildland fires, a few for vehicle fires, and some who can do all three.

I am so very proud of all the work that these men and women do day-in and day-out and it makes me even prouder to know that they have gone above and beyond to learn these skills and are prepared to help the people who live, work, and play in Colorado in ways we do not yet even know. Let's hope we have a quiet and restful summer, full of leisure and enjoyment; however, if summer should bring wildland fires, floods, earthquakes, or any other disaster, know that the Fire & Life Safety Section is prepared to help wherever we can. So the next time you have an inspector in your facility or on your jobsite, recognize that they might be doing more for Colorado than you think. Take the time to ask them about their drone or the last event they were on where they helped a family move back into their home quickly following a disaster - there might be some good stories to share there while you walk your site.

With that, I hope you all have a fun, safe, and relaxing summer!

Best Regards,

Chris Brunette
Section Chief, Fire and Life Safety



Fireworks 2021

By Pete Anderson

Most everyone loves fireworks. Everyone of all ages loves seeing the fire works in the sky on the 4th of July. There's nothing like seeing the big fireworks displays lighting up the sky with a bang, to celebrate our nations independence. Individual people also enjoy buying fire works to set them off in their yard and street for their children's enjoyment. To go along with this, is making sure that people stay safe and have an enjoyable time with permissible fire works that are allowed in the State of Colorado. This task falls to the Division of Fire Prevention and Control (DFPC), Issuing licenses and providing training material to retailers and wholesalers across the state. The State of Colorado has certain regulations in place to make sure that people and our forests stay safe.

This was my second year of doing inspections at retail fireworks stands for DFPC and working with our partners at the fireworks stands. Most of what we do is education and training to make sure that the firework stands remain in compliance with state statutes and regulations that ensure what fireworks stands can sell to the public.

We always strive to check at least 20% (which we surpassed this year) of the stands in Colorado to make sure that retailers see us out in the community and in addition to completing visual inventory checks. This way we can make sure that retailers are selling permissible fireworks but also provide guidance to the staff that are working the stands. Retail staff are always very helpful and polite when we do show up for an inspection, even when we do have to write up violations for non-permissible fireworks or insufficient tracking of inventories and safety measures. It is always fun interacting with the public and staff during these inspections. Most of the time when we do have to confiscate non-permissible fireworks it isn't because the stands are trying to sell illegal fireworks, but because the staff do not know what to look for when they receive their inventory.

This year there were a lot of hours spent waiting for local law enforcement to arrive to take possession of the non-permissible fireworks as their emergency calls dictated how quickly they could respond to confiscate them. It was interesting the interactions between us and local jurisdictions when they arrived, but very important to build a professional working relationship with all of our partners.

These interactions with the public and local law enforcement personnel are important to make sure that we can provide the appropriate service to our stakeholders, which are the citizens of the State of Colorado. Cannot wait to next year and see what is in store for DFPC.

Drinking From a Firehose and Understanding Socrates: A New Hire's Reflection on the Honor of Being a Member of DFPC

By Inspector Jim Riddell

"The only true wisdom is in knowing you know nothing." -- Socrates

When I first applied for this job as a State Fire Inspector, I very much doubted that I would be selected. I thought, and continue to think, that the inspectors associated with the Colorado Division of Fire Prevention and Control are the best of the best in the industry. They represent the elite. They are top class, intelligent, unwavering, and knowledgeable. They are full of integrity, are helpful, and are strict when it matters. This opinion has only been reinforced in my 9 months here. I consider it an honor and a privilege every single day to not just work with, but be accepted by them. In short, I love my peers, but this has not been an easy road to pave from a "new-hire's" vantagepoint.

The amount of information any one of us is expected to know fluently is staggering. Many refer to it as, "drinking from a firehose," and that's a pretty accurate representation of what is expected. I was naive if I thought I knew my job before arriving here, even after many years of performing it elsewhere. There are more than 300 NFPA codes which are published, and each is referenced to achieve the work we scrutinize, and aim to correct, on a daily basis. Then there are the International codes and endless data sheets that outline specifications of anything imaginable. Each and every one of us is expected to be proficient in each of these codes and informational sheets to the same level as a contractor who is building any variety of structure for any given purpose.

In my first 6 months, I took a total of 11 hours' worth of supervised tests just to reach a base level of proficiency. Every day, I continue to learn. After nearly 9 months, I am still considered a "new guy" because there is still so much to discover. The training required to remain among the elite is mind-boggling, but also so very worth the effort, and so very satisfying.

As I prepare for my ICC Commercial Building Inspector test tomorrow (another 3- & 1/2-hour test), and think of how much I have accomplished already, I can only say this: I could not ask for a better team of individuals to work with. Each and every one of these individuals was hand-picked by Chief Sontag and Chief Brunette to fill a void that existed within the Division. Some were sprinkler fitters, some were fire alarm installers, some were construction managers, and others, like myself, were firefighters. A few even came from different positions within the State. As positions become filled, it becomes apparent that any voids we once had are quickly vanishing. Our diversity makes us strong. We have expanded our perspective, and we work well together. We rely upon one another to accomplish a common goal, and we consistently do it as a unified team.

Simply put, we want to make the world safer one inspection, or one project, at a time. We do this every day, and most of our efforts are largely unnoticed if we do our jobs well. If nothing bad ever happens in a building we helped to construct, then we did our jobs perfectly. I am proud to be a part of such a thing. I am proud to be a State Fire Inspector, and I am flattered to have been asked by Chief Brunette to offer insight from my perspective. Thank you for having me as part of your amazing team.

Thank you, especially, to Dawn Tollis for suggesting that I even apply here in the first place. I'll never forget your support, guidance, and positive influence. You helped me triumph over stagnation, and allowed me to achieve things I never would have dreamed possible otherwise. You embodied every aspect of professionalism I have already previously listed during every interaction we ever had together. Now, I love what I do, and I am proud to represent the embroidery upon my new patch, which I happily wear whenever I'm on the job: "Honor, Service; Integrity & Loyalty".

The Fire Inspector's Mindset

By Chuck Altwater

As a Fire or Building Inspector, you have more responsibility for the lives of more people than you will ever know. Far more than the typical Firefighter, or Paramedic. Those lives depend on you recognizing a condition, procedure, or other deficiency which if left uncorrected, could lead to loss of human lives.

A poignant example of this is the recent collapse of a condominium building in Surfside, Florida, where nearly a hundred people are confirmed to have died in the building collapse and many are still listed as missing. Conditions in the building were found to be “deteriorating” and “unsafe” by an Engineer hired by the building’s owners, there is no record of municipal Building Inspectors reporting these conditions.

Another example of possible Inspector complacency is from the February 2003 fire at The Station nightclub in West Warwick, Rhode Island, where one hundred people perished. The club had been inspected annually for at least the two years prior to the fire by the city’s Fire Inspector, who failed to note the highly flammable interior finish, in the form of acoustic foam used to line the Drummer’s Alcove behind the main stage, which was the first fuel ignited by pyrotechnics used during a show with full house.

I cite these two incidents not to point fingers, or assign blame, but to remind us that as Fire and Building Inspectors we have an awesome responsibility for the lives of thousands, and even tens of thousands of people, who pass through all of the buildings and occupancies we inspect. Also, to remind us that we need to strive to avoid complacency in our work. How many times have we said, “it’s a good thing we don’t see very many of _____?” Whatever you fill in the blank with, it’s always possible that the only time you see it in your career, it could be the difference between life and death for many people, and it is your job to notice it, report it, and ensure it is corrected in the appropriate amount of time.

In Zen Buddhism, there is a word, “Shoshin.” This word, which has both Chinese and Japanese roots, means, “The mind of a novice,” or “an attitude to learn, resembling that of a beginner’s, in spite of one’s mastery.”

Simply put, despite your knowledge and experience, approach each new learning opportunity, be it a class, a conference, an inspection or simply a conversation with a colleague, and as an opportunity to learn something new. The way you did when you were still a brand-new Inspector.

When you see something during an inspection that you have never seen before, take the time to figure out what it is and how the Code applies to it. The way you did when you were just starting out.

Stay Curious; lives depend on it.





What is an “Arson Dog”?

By: Dawn Tollis, Lead Investigator

Over the last few weeks, Jo-Jo and I traveled around the state introducing her to our fire and law enforcement partner agencies. One of the most common questions asked was, “how does she determine if a fire was an arson?”

So, let’s clarify. While “Arson Dog” is a commonly used term, Jo-Jo is technically an “Accelerant Detection Canine.” Our purpose as a team is to assist the fire investigation by locating areas where samples should be taken that would produce a positive result for ignitable liquids from a laboratory. We do not solely determine if a fire is an arson.

One case in particular, a house fire occurred where one person was seriously injured in the fire and was unconscious in the hospital for several weeks, unable to be interviewed. During the investigation, an ADC was deployed and alerted on an area in the center of the living room floor. A sample was taken and produced a positive result for ignitable liquids. Weeks later, the injured party recovered and revealed during the interview that they would commonly work on their motorcycle in the living room when the weather was bad because there was no garage. The presence of ignitable liquid in that particular spot was therefore, explained. The “ah-ha” moment was gone...

Ultimately, while the ADC is an excellent resource to assist in investigations, we as investigators have to take all information collected to come to a determination, not just a single point of data. ADC’s have been beneficial in determining the presence of ignitable liquids on numerous cases that ultimately led to arson convictions.

Jo-Jo and I are very proud to provide this important resource to our partner agencies across Colorado!

[Click here to learn more about Jo-Jo and Dawn!](#)

FOLLOW US ON SOCIAL MEDIA!



2021 DFPC Plane Pull for Colorado Special Olympics

By: Scott Hixon

The Colorado Division of Fire Prevention & Control will be out in force at the Special Olympics Plane Pull on August 28th at the Rocky Mountain Metro Airport in Broomfield! Team DFPC had two teams pull a plane in 2020 and we are planning on an even bigger turnout this year.

You may support our team and all of the Special Olympic athletes by donating to Colorado Special Olympics at <https://www.classy.org/team/364695> or even better, we would love to see you put a team together and challenge us in pulling a 65,000-pound aircraft just 15 feet.



DFPC 2021 Code Adoption and Sprinkler Fitters

On July 1, 2021 the Division of Fire Prevention and Control adopted the 2021 International Fire Code (IFC), 2019 NFPA 13 and 13D and the 2018 NFPA 13R which effects Exam requirements for Sprinkler Fitters.

According to 8 CCR 1507-11 5.2.7 each applicant must pass a Division approved examination that encompasses the Division's current Code Adoption.

Due to this adoption, any applicant that submits their application and material following the July 1, 2021 adoption must provide proof of an Exam taken in 2021 or proof that the Exam currently held encompasses the 2021 Codes, regardless of when the Exam expires.

Accepted Exams are as follows:

- UA STAR Fire Sprinkler fitting Mastery Exam
- CSA Sprinkler Commercial On-site Competent Person Exam (ASCR2)
- City of Denver's Fire Sprinkler Systems Installer Examination*

* Exams taken to comply with another jurisdiction's registration requirements may be accepted by the Division if the exam was taken within one (1) year of the application date.

*If you have questions regarding this requirement please email us at cdps_dfpc_suppression@state.co.us.





Fire Prevention Week is October 3rd – 9th. Learn the Sounds of Fire Safety!

By: Scott Hixon, Inspector

The Colorado Division of Fire Prevention & Control will again be promoting and participating in the NFPA's Fire Prevention Week October 3rd – 9th. This year's FPW campaign, "Learn the Sounds of Fire Safety!" works to educate everyone about the different sounds the smoke and carbon monoxide alarms make. Knowing what to do when an alarm sounds will keep you and your family safe. When an alarm makes noises – a beeping sound or a chirping sound – you must take action. The campaign works to educate everyone about simple but important actions they can take to stay safe.

Every year during FPW, the DFPC spearheads an exciting and fun filled day of fire prevention events with our partner agencies. In the past this has included live fire demonstrations, fire sprinkler suppression systems, fire department apparatus and various training simulators used by fire departments across the state.

Make sure to check out the DFPC's dedicated Fire Prevention Week webpage at dfpc.colorado.gov/FPW2021 for an update on all that we have planned for this exciting week October 3rd - 9th.!



BUILDING CODE BRANCH UPDATES

By: S. Joellen Thiel

The Colorado Division of Fire Prevention and Control (DFPC) adopted the 2021 Editions of the International Building Code (IBC), Mechanical Code (IMC), Fire Code (IFC), Wildland Interface Code (IWIC), Energy Conservation Code (IECC), Existing Building Code (IEBC), Residential Code (IRC) and the 2021 NFPA 170 Standard for Fire Safety and Emergency Symbols effective July 1, 2021.

The ICC A117.1-2017 Standard for Accessible and Usable Buildings and Facilities is referenced by the 2021 IBC, so it will also be enforced along with the ICC 300-2017 Standard on Bleachers, Folding and Telescopic Seating and Grandstands and the ICC/NSAA 500-2020 Standard for Design and Construction of Storm Shelters. Additional standards referenced by the adopted codes will also be enforced, but when they are applicable, these three standards must be identified in the code analysis/data portion of the construction documents.

The Colorado Division of Regulatory Agencies (DORA) State Plumbing and Electrical Boards previously adopted the Colorado Plumbing Code (CPC), Colorado Fuel Gas Code (CFGC) and 2020 National Electric Code (NEC). Additional information can be found in 3CCR 720-1 State Plumbing Board Plumbing Rules and Regulations and 3CCR 710-1 State Electrical Board Rules and Regulations.

Note that 2021 IEBC 702.7.1 references the International Fuel Gas Code chapters 3, 4, 5 and 6 for Level 1 alterations. The DFPC review will confirm compliance with those IFGC chapters when applicable.

Every project must include a code analysis that indicates the construction type, occupancy classification, whether the building is fully sprinklered or not, locations of any rated wall construction, and a complete list of the adopted codes and applicable referenced standards. This is the first thing plan reviewers check. Also, a reminder to label your drawings either “100% Construction Documents” or “Permit Documents”. Anything that is labeled less than “100%” complete, “Not for Construction”, “Design Development”, “Bid Set” or similar will not be reviewed or permitted.

Below are highlights of some of the 2021 code updates, recent field issues, and improvements being implemented by the DFPC Building Code Branch (BCB).



CONSTRUCTION TYPES FOR EXISTING BUILDINGS

Inspectors have discovered several projects that have the incorrect construction types for the existing building noted on the permit drawings. Prior to submitting for permit, please visit the site and verify the existing building construction types based on the 2021 IBC 602. The reality of what was built does not always match what was shown on the original construction documents. If the construction type is incorrectly identified on the approved permit documents, it will need to be corrected during construction and that change may have significant impacts on the design.

ENHANCED ACOUSTICS FOR CLASSROOMS

Section 1207 of the 2021 IBC has scoping provisions for Enhanced Classroom Acoustics. It requires classrooms in Group E occupancies with a volume of 20,000 cubic feet or less to meet ICC A117.1-2017, Section 808. This section includes requirements for both reverberation time and ambient sound level. There are similar scoping provisions in the 2021 IEBC; however, the IEBC only requires that the reverberation times be met, not the ambient sound levels. DFPC will be enforcing enhanced classroom acoustics during both the plan review and inspection phases.

CARBON MONOXIDE (CO) DETECTION IN EXISTING BUILDINGS

CO detection is now specifically called out for classrooms in E occupancies in 2021 IEBC 308.1 in accordance with the IFC when there is an alteration, addition, change of occupancy, or building relocation. This aligns with the interpretation DFPC has been enforcing for existing buildings since the 2015 codes were adopted.

ACCESSIBLE MEANS OF EGRESS VERSUS ACCESSIBLE ROUTE

This is not a code change, but a clarification DFPC is providing due to projects having to undergo major design revisions because the requirements for the accessible route were not met. Per 2021 IBC 1104.4 “At least one accessible route shall connect each accessible story, mezzanine and occupied roofs in multilevel buildings and facilities.” There is an exception (#1) for this requirement when the story is not more than 3,000 SF and above or below the accessible level; however, #1.4 does not permit the exception to be applied to government buildings. A public school is considered a government building, so an accessible route is required to the basement, occupiable roof and/or mezzanine.

Also, keep in mind that an “Accessible Route” is different than an “Accessible Means of Egress”. The elements that can be included as part of an accessible route are listed in ICC A117.1-2017, 402.2. The elements that can be included as part of an accessible means of egress are listed in 2021 IBC 1009.2. In most cases, an elevator is used to successfully create an accessible route to a story above or below the accessible level, while an elevator is not required to create an accessible means of egress from that same story.

PERMIT EXPIRATIONS, EXTENSIONS AND SCOPE CHANGES

Prior to a permit being issued, permit applications are valid for 180 days per 2021 IBC 105.3.2. This means that once comments are returned to you by DFPC, they must be responded to within 180 days. If a response is not received within that timeframe, the permit will be closed and a new permit will need to be applied for.

If scope is added to a permit before the permit is issued, it may be possible to revise the permit by updating the project valuation and paying the additional associated fees. Notify the assigned plans examiner (Dee Stevens, Jack Howard, Joellen Thiel, or Jon Weir) and the permit technician (Phyllis LoSordo) by email of the new or reduced scope and provide an updated project valuation, so that the fees can be recalculated.

Revised drawings must also be submitted for review.

In the past, DFPC has permitted scope to be added to issued permits under construction if the permit had not been closed by the inspector. Because of the method that fees are now calculated and collected and because recently, that policy has been taken advantage of, DFPC will no longer allow scope to be added to an already issued permit. Design revisions may still be allowed without requiring a new permit. The proposed scope changes and design revisions will be reviewed on a case by case basis by both the assigned plan reviewer and inspector to determine if a new permit is required.

Did you know issued permits expire if work is not commenced within 180 day after its issuance or if the work is abandoned for a period of 180 days after the work has commenced? This is per 2021 IBC 105.5. Extensions can be granted by the building official for periods of not more than 180 days. Any requests for permit extensions shall be made in writing and demonstrate a justifiable cause. An extension request is not required if the work has commenced and work has continued to progress, including scheduling inspections.

ENCLOSURES UNDER STAIRWAYS, SEATING RISERS AND BLEACHERS

Per 2021 IBC 1011.7.3 “Enclosed usable spaces under stairways shall be protected by 1-hr fire-resistance-rated construction...” Recently, the question has come up if this also applies to the enclosed areas under bleachers or the seating risers that are often designed for a commons area. DFPC’s interpretation is that any enclosed usable spaces under seating risers must also meet IBC 1011.7.3 and IBC 1030.1.1.1 requires rated construction under bleachers.

RATED CONSTRUCTION DETAILS AND LISTINGS REQUIRED

All fire rated construction must be thoroughly detailed by the designers and included on the permit documents per IBC 703.2 and 107.2.1. Copies of any applicable listings are also required to be submitted with the permit documents for review. The construction details must indicate the applicable listing number and coordinate with the provided listing. The listings are not to be substituted for the construction details and referencing the spec is not a sufficient replacement for a detail. The details and listings are used by both the contractors and inspectors during construction.

FIRE SPRINKLERS IN E OCCUPANCIES

IBC 903.2.3, #3 requires fire sprinklers in E occupancies when the occupant load of a fire area is 300 or more. This applies even if the fire area is under 12,000 SF.

DETAILS REQUIRED FOR TYPE 1 HOODS

Due to a variety of code compliance issues the DFPC inspectors are discovering during construction, the BCB now requires the architect to include enlarged construction details at all Type 1 hoods. Generic drawings prepared by the hood manufacturer or mechanical engineer, and/or references to the specs do not meet this requirement because the level of detail is typically not sufficient. The architectural details must show compliance with IMC 506.3.6, 506.3.11, 506.5.3, 506.5.4, 506.5.5, 506.5.6, 507.2.6 and 507.2.7. Deferred submittals are also still required for the Type 1 hoods.

2021 COMCHECK NOT RELEASED

Designers must show compliance with the energy code by using one of three options – the 2021 IECC C401.2.1 #1 Prescriptive Method, C401.2.1 #2 Total Building Performance Method, or C401.2.2 ASHRAE 90.1. Many designers use ComCheck to show compliance with portions of the prescriptive method. Currently, Energy.gov has not released the 2021 ComCheck updates. Until the 2021 Comcheck programs are released, if the prescriptive method is the chosen path to compliance, additional information will need to be included on the construction documents that had previously been communicated by the passing ComCheck reports.

THERMAL ENVELOPE CERTIFICATE

DFPC will be enforcing the new code requirement for a thermal envelope certificate to be completed by an approved party and posted in an approved location. An electronic copy of the certificate must be provided to the inspector at final inspection. See 2021 IECC C401.3 for details about the information required to be included on the certificate.

FOLLOW US ON SOCIAL MEDIA!

